LOUISIANA DEPARTMENT OF WILDLIFE & FISHERIES

OFFICE OF FISHERIES
INLAND FISHERIES SECTION

PART VI -A

WATERBODY MANAGEMENT PLAN SERIES

CANEY CREEK RESERVOIR

LAKE HISTORY & MANAGEMENT ISSUES

CHRONOLOGY

DOCUMENT SCHEDULED TO BE UPDATED ANNUALLY

January 2006 – Prepared by
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February 2006 – Updated by
Mike Wood, Biologist Manager, District 2

January 2009 – Updated by
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June 2009 – Updated by
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January 2013 – Updated by
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January 2014 – Updated by
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LAKE HISTORY

GENERAL INFORMATION

<u>Parish</u>
Jackson

<u>Date Lake formed</u>
February 26, 1986

<u>Impoundment</u>
Caney Creek, Smith Branch, Clear Creek, Cypress Branch, Hancock Creek, and Boggy Branch

<u>Size (surface area)</u>
5,000 acres

<u>Watershed</u>
41.5 square miles of area (26,560 acres) drain into Caney Creek Reservoir. The ratio of watershed to lake surface is small at 5.3:1.

Watershed characteristics: Commercial pineland forest, upland hardwood, pasture. Soil is acidic, sandy, and infertile. Soil alkalinity and pH are low.

<u>Pool Stage</u>
Surface elevation of Caney Creek Reservoir is set at the spillway weir elevation of 200 MSL.

<u>Spillway width</u>
Box type structure – total weir length – 125 feet

<u>Drawdown description</u>
Gate Size - 4 foot x 8 foot
Number of gates - 3
Condition – good

<u>Who controls</u>
Louisiana Department of Transportation and Development is responsible for the maintenance and operation of 19 reservoir embankments, including Caney Creek Reservoir, to maintain their integrity and to prevent any breach or damage to the existing facilities as per Act 270 of 1984. DOTD is not responsible for lake management. Requests for lake drawdown (for lake management purposes) must be directed to the Secretary of DOTD in writing from the Secretary of the Department of Wildlife and Fisheries. Verbal request are not to be accepted. The letter from Wildlife and Fisheries is to indicate the date for gate opening and the rate of drawdown desired for wildlife or lake management purposes.

LAKE AUTHORITY

Association

The Jackson Parish Watershed District shall consist of seven commissioners, each of whom shall be a qualified elector of the State of Louisiana who resides within the limits of Jackson Parish. The commissioners shall be appointed by the Jackson Parish Police Jury and serve terms of 4 years and until their successors have been appointed and have been qualified. Any vacancy in the office of commissioner, due to death, resignation or any other cause shall be filled by an appointment of the Jackson Parish Police Jury. See Attachment – Official Policy, Rules and Regulations Adopted by the Jackson Parish Watershed District.

Jackson Parish Watershed District Members:

MEMBER NAME	TERM EXPIRES	DATE APPOINTED	ADDRESS
Rayo Barker	3/09/17	4/8/13	288 Ed Peevy Rd. Jonesboro, LA 71251
Tommy Chatham	6/27/16	6/11/12	2606 Hwy. 499 Chatham, LA 71226
Dennis Clary	5/12/17	5/13/13	156 Pine Hill Road Quitman, LA 71268
James Edwin Davis	4/7/17	4/8/13	1383 Riser Road Ruston, LA 71270
Billy Moore	1/13/17	1/14/13	4480 Highway 505 Jonesboro, LA 71251
Lavelle Smith (Chairman)	4/11/15	4/11/11	154 Easy St. Chatham, LA 71226
Vacant			

Authorization

LA R.S. 38:2900 creates the Jackson Parish Watershed District, out of the watershed of all streams located in Jackson Parish, and more particularly defined as all of Jackson Parish, Louisiana. The Jackson Parish Watershed District shall be an agency of the State of Louisiana and a budgetary unit thereof, which shall have as its purpose the conservation of soil and water, developing the natural resources and wealth of the district for sanitary, agricultural and recreational purposes, as the same may be conductive to the public health, safety, convenience or welfare or of public utility or benefit of the citizens of the State of Louisiana.

Ownership of Lake Bottom retained by private individuals. Servitudes, rights of way, and flowage rights were acquired by Jackson Parish Watershed District prior to impoundment.

ACCESS – MAPS WITH LOCATIONS

Boat Docks

SEE CANEY PUBLIC BOAT RAMPS – APPENDIX I

Piers

Privately owned piers are associated with many lakeside properties. Public piers are located in the Jimmie Davis State Park.

State/Federal facilities

Jimmie Davis State Park - http://www.lastateparks.com/jimmiedavis/jimmiedavis.htm

Located on a peninsula of Caney Creek Reservoir, the State Park offers two boat launches and a fishing pier. Eighty picnic sites, including picnic tables and charcoal grills are provided. The park's three picnic pavilions can accommodate larger gatherings. Seventy three camping sites can accommodate camper trailers or tents. Each site is equipped with a table, tent pad, and a fire ring. Two comfort stations and laundry facilities are the camping area. Overnight accommodations include 17 two-bedroom cabins, two four-bedroom lodges and a group camp that can house 120 guests. A swimming beach is located on the lake with adjacent restrooms and a bathhouse. The park also has a playground.

Opened in the fall of 1996, Jimmie Davis State Park was originally named Caney Creek Lake State Park. The 2003 Louisiana State Legislature approved renaming the park in honor of two-term Governor Jimmie H. Davis.

Artificial Reefs

Artificial reefs were constructed during the winter of 1998-99 to provide complex cover in the absence of submerged aquatic vegetation. The project was not expected to increase the productivity of Caney Creek Reservoir. The amount required to accomplish that goal (15%-30% of 5,000 acres = 750-1500 acres) is not feasible. The project was designed to provide cover in known locations to attract fish and increase angler success. Each material is ranked in the following list by four categories:

Deployment Rating

1) Brush – Cheap, fast, and easy if collection site is near water. Woody species primarily used were negatively buoyant. Species including sweet gum, hickory, and deciduous holly will sink without additional weight in early spring before leaf out.

   Christmas trees were also used in an effort to incorporate volunteer assistance. Christmas trees require considerable weight to sink, have short longevity, and were found to be a poor substitute for native woody species

2) Tires - Require considerable effort drilling holes and tying tire arrangements.

3) Wooden Pallets - Require considerable effort tying arrangement and even more effort to construct, and transport concrete anchors.

Public Acceptance

1) Brush - Widely accepted primarily because of its status as a natural material.
2) Pallets - Accepted well.
3) Tires - Not well accepted.

Durability

1) Tires
2) Pallets
3) Brush

Fish Attraction

1) Brush
2) Pallets
3) Tires

Three groups of reefs were constructed in the lower, middle and upper end of the lake. Reef sites were selected with the assistance of the JPWD. Potential sites upstream of the pipeline were eliminated to ensure adequate water depth for boat clearance. Reef structures deeper than 14' feet were limited due to considerations of summertime stratification. Reef sites were marked with buoys to enable angler utilization. Maintenance of buoys was found to be a continuous challenge. Problems include detachment of buoys from anchors due to corrosion and inadvertent movement of buoys from boat mooring and wind drift.

Maps indicating reef location were distributed at local marinas and tackle dealers.

Note - Tires were used, after approval was secured by LA Dept. of Environmental Quality (DEQ) and the Environmental Protection Agency (EPA).

In addition to the reef materials listed above, additional work was conducted using polyethylene pallets. Fifteen prototype reef structures were deployed in the immediate proximity of four existing reef buoys to facilitate underwater observation. Preliminary work with the polyethylene pallets resulted in the development of a durable structure that attracts fish very well.

SHORELINE DEVELOPMENT

The majority of the Caney Creek Reservoir shoreline is residential with significant new development. Associated boat houses and piers are very numerous.

Two commercial marinas are in operation, with one near the spillway at the lower end of the lake and one adjacent to LA Hwy 4 on the upper end of the lake. Both offer bait, concessions, and fuel. Both have overnight accommodations.

PHYSICAL DESCRIPTION OF LAKE

<u>Shoreline length</u>
72 miles

<u>Timber type</u>
Discussed below

<u>Average depth</u>
16 feet

<u>Maximum depth</u>
43 feet

<u>Natural seasonal water fluctuation</u>
1 to 2 feet

MANAGEMENT ISSUES

AQUATIC VEGETATION

Aquatic habitat is a primary influencing factor in the management of any water body. LDWF recognizes the importance of complex cover and has designated an area coverage range of 15% - 30% as desirable for sport fish species.

In Caney Creek Reservoir, complex cover is currently limited to aquatic vegetation. Timber in the lake bottom was cut prior to impoundment. Terrestrial re-growth that occurred before flooding was primarily in the form of pine, willow, and woody vines. Newly flooded terrestrial woody plant species were available as cover for the extended period of impoundment. Once flooded, however, the young trees and vines decomposed over time.

<u>Aquatic Type map</u>

(**SEE APPENDIX II – TYPE MAP HISTORY**)

Hydrilla Control History

Hydrilla was first discovered in Caney Creek Reservoir in 1989. At that time, hydrilla was not widespread in Louisiana and LDWF was attempting to chemically eradicate all new occurrences. In Caney Creek Reservoir, a hydrilla eradication program was initiated, with a designated goal of completely removing hydrilla from the reservoir before the species became well established.

Three separate herbicide applications were made. Fifty six acres were treated in 1989 with 5 gallons of Diquat (diquat dibromide) and 2.5 gallons of Cutrine Plus® (copper)/ha of infestation. Subsequent inspections in 1989 indicated good control (95%) in all treated areas. The lake was surveyed in early June 1990. Re-growth of hydrilla was noted in all areas treated the year before. Sixteen additional isolated infestations were documented and 8 km of shoreline infestations were found around the lake.

It was decided the herbicide Sonar® (fluridone) would be used. Application rates were 31.25 lbs. /acre in water 4 foot deep or less and 62.5 lbs. /acre in water deeper than 4 feet. Subsequent cleanup applications were expected to be necessary.

A total of 352 acres of hydrilla were treated with Sonar® during 1990. Ninety-five percent of the infestation was controlled within 60-90 days. A re-evaluation of the applications was made on 29 May 1991. Thirty seven to 53 acres of hydrilla were found during the inspection. In July of 1991, a total of 47 acres of hydrilla were treated with Sonar® and Hydrothol® 191 (endothall). Evaluations of the 1991 applications were made on 11 May, 15 June, and 25 June 1992. Approximately 440 acres of hydrilla were found throughout the reservoir. Based on the poor results - an eight-fold increase in hydrilla even with the expenditure of approximately $250,000, the eradication program using herbicides was terminated.

In September 1993, an Aquatic Management Plan for Caney Creek Reservoir was developed by LDWF. In the plan, hydrilla was recognized as the species with greatest potential to negatively impact the multiple-use reservoir. However, because eradication efforts had failed, control efforts would address hydrilla as a part of total macrophyte coverage. Also in the Aquatic Management Plan was LDWF recognition of the beneficial aspects of aquatic macrophytes to fisheries at certain levels of coverage. LDWF recommendations included a macrophyte coverage range of 15-30% as a goal. Options for control of hydrilla were considered:

1. No Action: The unchecked growth of hydrilla would cause unacceptable damage to the aquatic ecosystem and severely restrict the intended utilization of the reservoir.

2. Water Level Manipulation: This method is used in many Louisiana reservoirs to manage aquatic habitat. Unfortunately, due to the small watershed of Caney, water level manipulation is not a viable tool to manage aquatic habitat. It could take up to three years to re-fill the lake after a drawdown.

3. <u>Mechanical Control</u>: Harvesters cost an average of $500-$1250 per acre (Thayer and Ramey, 1986) to operate and typically harvest only 0.5– 1.0 acre/day. Additionally, the harvesters can spread the infestation.

4. <u>Biological Control</u>: Potential agents include pathogens, insects, and fish that have evolved with and naturally suppress hydrilla in its native range. Several insect species have been tested and released in the U.S. Their effectiveness is still under study. The most effective biocontrol agent for control of hydrilla has been the grass carp (*Ctenopharyngodon idella*). Hydrilla is one of the preferred foods for grass carp. Stocking rates are 5-30 fish/acre (Sutton and Vandiver, 1986).

A biological control program was initiated utilizing triploid grass carp. A serial stocking strategy for triploid grass carp was developed. This was based on information from prior LDWF research with stocking rates, actual stocking regimes of numerous large reservoirs, the U.S. Army Waterways Experiment Station (WES) AMUR/STOCK simulation model (Boyd and Stewart 1995), and Colorado GRASCARP stocking model (Swanson and Bergersen 1988). An abbreviated version of the Caney Creek Reservoir triploid grass carp study is provided below. The complete document is published in the 2000 Proceedings of the Annual Conference of the Southeastern Association of Fish and Wildlife Agencies 54: pp. 18-27. Reprints are available from the LDWF District II office in Monroe.

EFFECTS OF AQUATIC VEGETATION REMOVAL ON THE TROPHY BASS FISHERY OF CANEY CREEK RESERVOIR

DISCUSSION

In February 1994, 11,968 triploid grass carp were stocked into Caney Creek Reservoir at a rate of 8.0 fish/vegetated acre or about 2.5 fish/surface acre. By July 1995, virtually all the submersed vegetation had disappeared. This stocking rate is relatively low when compared to other large Southeastern U.S. reservoirs. Lake Conroe, Texas was stocked with 270,000 grass carp for a rate of 30-fish/vegetated acre in September 1981 (Klussman et al. 1987). This resulted in the elimination of virtually all the submersed aquatic vegetation by the summer of 1983. Lake Marion, South Carolina was stocked with 300,000 triploid grass carp over a four year period, for a final stocking rate of about 25 fish/vegetated acre. After the first two years the hydrilla coverage increased, but by the fourth year hydrilla coverage had been reduced by 58%. Based on these reports, the stocking rate in Caney Creek Reservoir was relatively conservative and should not have been solely responsible for the elimination of submerged vegetation in a year and a half. Before July 1995, dead hydrilla stems were observed floating in the lake, indicating that additional environmental control factors might have been involved. Additionally, the water level surged to 3 feet above normal in spring 1995. Sudden changes in the two plant growth parameters could have contributed to the reduction in submersed plant biomass. With the eventual reduction of submersed aquatic macrophyte coverage, the number of triploid grass carp in the lake was certainly sufficient to suppress plant regeneration.

Eight years after impoundment, Caney Creek Reservoir had achieved national recognition for producing trophy size largemouth bass. Three successive Louisiana State Record bass and many others weighing in excess of 12 pounds were attributed to a successful management program. One component to the success at Caney Creek Reservoir was aquatic macrophyte coverage within a range of coverage considered to be beneficial to fisheries.

Levels of aquatic vegetation coverage considered to be beneficial to game fish in Hinkle (1986) and Wiley et al. (1987) range from 10-40%. Durocher et al. (1984) concluded that a reduction in submerged vegetation below 20% would result in a reduction in largemouth bass recruitment and standing crop. Because the status of fisheries in Caney Creek Reservoir was considered to be excellent with the 33% area macrophyte coverage that existed in 1993, there was angler concern that the introduction of grass carp and any associated reduction in macrophyte coverage would have negative consequences to angling success. Much of that concern originated from widely publicized accounts of the Lake Conroe case history. With the absence of other forms of complex cover in Caney Creek Reservoir, the reduction of aquatic macrophyte coverage also produced a reduction in largemouth bass abundance. Largemouth bass CPUE 8”-12” was reduced by 45%. Protection afforded by the 15”-19” protective length range likely delayed subsequent reductions to larger bass.

Largemouth bass angler success increased slightly throughout the study period. Unfortunately, those values are more a function of reduced angler usage than increased catch rate. With the removal of available cover, largemouth bass became more difficult for most anglers to locate in the reservoir. Largemouth bass angler efforts decreased during the study period by 44%. Many of the anglers who continued to fish Caney Creek Reservoir after macrophyte removal were locals who were familiar with the topography of the area before impoundment. Knowledge of underwater topographic irregularities provided an advantage for some anglers since the features attract largemouth bass and are unknown to other anglers. An increase in average size of harvested bass was concurrent with macrophyte removal, but is attributed to an increased protective length range.

Temperature, pH, and stratification pattern followed seasonal influence and were not influenced by the reduction in macrophyte coverage. However, there were changes in nutrient values during the study period that were influenced by the shift from a macrophyte-based system to a plankton-based system. Water clarity varied seasonally with some exceptions. Reduced water clarity from April through June 1994 served as a limiting factor to macrophyte growth.

The issue of invasive nonindigenous aquatic plants is not a new problem in Louisiana. However, the challenge of hydrilla control in Caney Creek Reservoir was particularly difficult because of pre-existing conditions. The potential for hydrilla to spread rapidly throughout the impoundment was high. Consequences that could include interference with various water uses and displacement of native aquatic plant communities were imminent. After herbicide treatments failed, control measures were limited to a biological option. Triploid grass carp were introduced at a rate compiled from the best available information to control macrophyte coverage to within a desirable range. The 8 carp/vegetated acre rate was selected with the expectation that more carp would be likely required. Unfortunately, there are influences to the equation of hydrilla and grass carp that are beyond the control of resource managers. The experience at Caney Creek Reservoir will serve as evidence to that fact, as one set of problems was exchanged for another.

Grass Carp Removal Efforts

With the objective of aquatic vegetation coverage 15-30% as provided in the Aquatic Management Plan, efforts to remove grass carp from Caney Creek Reservoir were initiated in 1996. Removal efforts included the following:

1. Feeders were placed at 3 locations in the lake in an effort to concentrate carp for removal
2. Fisheries Management Bait (rotenone treated feed) – was fed to the carp from the feeders. No resulting dead carp were observed.
3. Gill netting – Thousands of LDWF man-hours were spent gill netting over a three year period. LDWF personnel from combined districts were used in a combined effort on two different occasions. During those combined efforts, a combined 11,000 yards of webbing was used. Catch per effort was relatively low. High water clarity required night time netting. Throughout the gill netting effort, largemouth bass by-catch in this Trophy Bass Lake was of special concern to LDWF personnel and was a limiting factor. Hourly attendance of nets was required to prevent the loss of trophy size largemouth bass
4. Commercial Fishermen – Used under permit with LDWF supervision – limited success (Range: 17-35 carp per trip). The commercial angler eventually quit because he wasn't making enough money through the sale of carp plus the bounty to justify efforts
5. Bowfishing: Initially was restricted to LDWF personnel due to amendment to Title 56 Sec. 320 (Methods of Taking Freshwater and Saltwater Fish) that was included to provide for bowfishing harvest of sport fish. Public bowfishing tournaments were encouraged, but were inhibited by permit requirements as per the existing State Law. LDWF efforts to encourage Legislative action allowing public bowfishing and eliminate permit requirements were eventually successful
6. Strike netting efforts were largely unsuccessful - carp jumped nets or just went through
7. Electrofishing was also unsuccessful. Grass carp are large, fast fish that are especially sensitive to noise. Electrofishing requires close order contact with the target fish. Our electrofishing rigs generate considerable noise and vibration with an outboard motor and a 16 HP

generator

8. Miscellaneous: Other methods were utilized, but were unsuccessful.
   They included: Buckshot, Hook & Line, Lead nets, and Pound Nets.

December, 1999: Total documented grass carp removed from Caney – 2,252.
With public bowfishing underway and LDWF catch per effort declining by all methods, LDWF removal efforts were discontinued.

March 10, 1996 – PLANT PATHOGEN INVESTIGATION
Received report from Louie Richardson, LDWF Aquatic Plant Research Program Supervisor. Hydrilla samples from Caney were sent to the U.S. Army Corps of Engineers Waterways Experiment Station in Vicksburg, Mississippi. Analysis indicated that the hydrilla found in Caney Creek Reservoir was dioecious, not monoecious. Hydrilla can be either monoecious (both male and female flowers on the same plant) or dioecious (male and female flowers on different plants). Reproductive potential of the plant is influenced by the classification, especially if only one sex of dioecious plants is present

The samples sent to Vicksburg for analysis were found to have 31 fungi - 11 weakly pathogenic. Pathogens were ruled out as a cause for disappearance of Caney hydrilla.

March 24, 1997 – HERBICIDE APPLICATION INVESTIGATION (from M. Wood notes)
In a March 24th conversation with Jimmy Vines (JPWD Chairman), I was apprised of a suspected aerial herbicide application in the Caney Lake drainage in spring of 1995. Because of the, as yet, unexplained disappearance of submerged aquatic vegetation, I considered the report to be worth investigation.

I called Dean Hart in the Monroe office of the LA Dept. Of Agriculture & Forestry to request that he makes appropriate inquiries. I received correspondence that included the application report. From it, I found that there was indeed an application made on May 25, 1995. Glyphosate was applied at label rates over 262 acres well up in the watershed. The application was contracted by Willamette Industries for broadleaf control in a stand of pine. I consider the report to be important in that it defines a "pre-disappearance" herbicide application, but I consider this herbicide application as unlikely to be a significant factor. Report on file.

May 18, 2004: GRASS CARP REMOVAL
Representatives of JPWD (Henry Kimp, Robert Greer, and Dwight Cooper) met with LDWF (Dwight Landreneau, Bennie Fontenot, and Mike Wood) to discuss concerns related to Caney Lake. The meeting was held at LDWF Headquarters in Baton Rouge. Subjects discussed included carp removal, bass regulations, and coordination of various enforcement agencies.

It was agreed that if carp removal efforts were to be re-initiated, public bowfishing would be the best removal method. Public bowfishing for carp in Caney Lake was initially prohibited by Louisiana Law. Legislation passed in 1999 provided for public bowfishing, thereby increasing potential manpower for carp removal many times over. Bowfishing is also preferred over methods such as gill netting because of its lack of bass by-catch. Inadvertent mortality to trophy bass during carp removal efforts is considered to be unacceptable. Various methods of attracting bow anglers were discussed. One method included a carp bounty involving LA State Parks personnel to certify catch. A bow fishing tournament with prizes to the most successful anglers was also discussed.

July 25, 2004: CANEY CARP RODEO

The Caney Lake Carp Rodeo was held on the weekend of July 23rd - 25th. Twenty four teams competed in the 2 night tournament. Tournament hours were 9 pm – 9am. The first place team killed 10. Total kill for both nights was 58.

With few exceptions, the tournament participants were all well-equipped and very experienced. The problem expressed from all anglers was that they didn't see many carp. Most reported that they saw very few more than they were able to kill. Those reports closely matched recent LDWF observations.

January 4, 2005: CANEY LAKE GRASS CARP LIFESPAN ESTIMATES

In response to the pending question regarding the lifespan of triploid grass carp in Caney Creek Reservoir, mortality estimates were developed by Joey Shepard, LDWF. The calculations are based on known information (number of grass carp stocked, number documented as removed, and respective dates of both) and assumes a 25% annual mortality rate (Table 1). Certainly, the product of the calculation is only estimation, but the exercise and our observations indicate grass carp in Caney are nearing the end of their life span and soon will not be a significant control factor for submerged aquatic vegetation. Accordingly, continued efforts to remove grass carp are not necessary for the re-establishment of aquatic vegetation. In the event that removal efforts are strongly supported and requested by the JPWD, the following methods are recommended:

1. Commercial fishermen utilized through special permit to target grass carp
2. Bow fishing tournaments with associated bounties

August 1, 2005: A SUMMARY OF RESEARCH ON GRASS CARP LIFE SPANS

Also in response to the pending question regarding the lifespan of triploid grass carp in Caney Creek Reservoir, additional research was conducted through available resources. Results of the search showed considerable variability, with reported life spans ranged from 5 yrs. to 30 yrs. (Table 2). Research showed that ages may be affected by the genetic phenotype type of fish (diploid or triploid) and also environmental influences. The manner in which data was reported was also variable, with most listing a range for average lifespan and some listing presenting maximum recorded age. As to the question of triploid grass carp in Caney Creek, the data indicate an expected lifespan 10-15 years. Grass carp were stocked into Caney Creek Reservoir in February, 1994.

Table 2. Longevity estimates of grass carp from various research projects in the U.S.

SOURCE	AGE
South Florida Aquatic Plant Management Society. <u>The use of triploid grass carp in waterway management.</u>	10 +

Texas Parks and Wildlife Dept. Internet publication: Grass carp in Texas. Prepared by E. Chilton.	6 – 10
Univ. of Georgia College of Agriculture and Environmental Sciences Cooperative Extension Service. 1999. Leaflet 418: Use of sterile grass carp to control aquatic weeds. Prepared by G. Lewis.	10 – 15
Langston University Research and Extension. Controlling aquatic vegetation with grass carp. Prepared by K. Williams and G. Gebhart.	12 – 15
Minnesota D.N.R. 2001. Briefing paper on triploid grass carp.	12 – 15
Western Aquatic Plant Management Society. 2003. Internet publication.	10 +
Greene Co. New York Soil and Water Conservation District. Internet publication	10 avg.
Virginia D.G.I.F.	5 – 11
Virginia D.G.I.F	20 +
Southern Regional Aquaculture Center. 2002. Publication no. 3600: Using grass carp in aquaculture and private impoundments. Prepared by M. Masser.	10-15 20 max
Florida Fish and Wildlife Conservation Commission. Internet publication. Prepared by B. Wattendorf	15 max.
www.aquaticmanagement.com/grasscarp.htm	8 – 12
www.advertisergleam.com/carp.html	9 – 15
Schoharie Co. N.Y. Soil and Water Conservation District. Internet publication.	10 avg.
Ohio State University. Extension fact sheet HYG-7001-88: Triploid white amur for Ohio. Prepared by J. Long.	15 max.

Re-vegetation Efforts

In January of 2006, efforts to re-establish beneficial submerged aquatic vegetation in Caney Lake began. Ten exclosures were constructed in various locations around the lake to serve as nursery areas. Tubers of eelgrass and sago pondweed were placed in the exclosures in May of 2006; tubers were also planted in unprotected areas. Coontail was transported in large quantities from Black Bayou Lake to Caney Lake from the period of May through July of 2006.

Observations made in June of 2006 revealed that the tuber plantings were successful in 8 of the 10 exclosures. One of the unsuccessful exclosures had become covered with watershield, which shaded the submerged plants. By late August 2006, four of the exclosures were covered with watershield with no submerged vegetation observed; the remainder of the exclosures had only remnants of the eelgrass and sago pondweed that had been observed previously. Coontail was observed during the evaluations, but in much smaller quantities than when placed at the planting sites.

It became evident during the 2008 aquatic vegetation type map assessment that eelgrass was the only aquatic plant purposefully introduced during the 2006 re-vegetation efforts that had become established. In the spring of 2009 eelgrass from established beds in the Clear Branch area of Caney Lake were transplanted to other areas of the lake. The transplant effort has been marginally successful.

Nuisance Aquatic Vegetation Control Following Re-vegetation Efforts

Despite the near elimination of submerged aquatic vegetation following the grass carp introduction, undesirable species that were not palatable to aquatic herbivores have been a nuisance at times on Caney Lake. By the time re-vegetation efforts began in 2006, the numbers of grass carp had been significantly reduced by removal efforts and natural mortality. The primary problematic species include: water hyacinth (*Eichhornia crassipes*), common salvinia (*Salvinia minima*) which was first documented on Caney Lake in 2007, giant salvinia (*Salvinia molesta*) which was found on the lake in 2009, alligator weed (*Alternanthera philoxeroides*), and water primrose (*Ludwigia octovalvis*). Complaints were also received from shoreline residents about small areas of vegetation along their shoreline. Quite often this was beneficial vegetation, but the location was a nuisance to the property owners. Foliar herbicide applications for control of nuisance aquatic vegetation have been made periodically by LDWF spray crews. Herbicide applications made from 2005 through 2013 are listed in Table 3.

Table 3. Herbicide applications by LDWF spray crews in Caney Lake, LA from 2005 – 2013.

Treatment Year	Primary Plant Species	Herbicides Used	Acres Treated
2005	water hyacinth	2,4-D – 23 gals. (0.5 gal/acre)	45
2006	water hyacinth, alligator weed, water lily	2,4 – D – 25 gals. (1 gal/acre) Aquastar – 60 gals. (0.75 gal/acre)	103
2007	water hyacinth, alligator weed, water pennywort, common salvinia	2,4 – D – 30 gals. (0.75 gal/acre) Aqua Master – 15 gals. (0.75 gal/acre)	65
2008	water hyacinth, alligator weed, common salvinia	2,4 – D – 112 gals. (1.25 gal/acre) Aqua Master – 18 gals. (0.75 gal/acre) Aquastar – 20 gals. (0.75 gal/acre) Reward – 80 gals (1 gal/acre)	222
2009	water hyacinth, alligator weed, water primrose, water pennywort, common salvinia, giant salvinia, hydrilla	2,4 – D – 51 gals. (1 gal/acre) Platoon – 384 gals. (0.75 gal/acre) Aqua Master – 41 gals. (0.75 gal/acre) Diquat E Pro 2L – 379 gals. (1 gal/acre) Knockout – 15 gals. (1 gal/acre) Reward – 22 gals. (1 gal/acre) Aquathol Super K – 66 lbs. (3.5 ppm)	993
2010	water hyacinth, alligator weed, water pennywort, common salvinia, parrot's feather	Platoon – 60 gals. (0.5 gal/acre) Aqua Master – 380 gals. (0.75 gal/acre)	597
2011	water hyacinth, water primrose, common salvinia, giant salvinia, water lily, water shield	Aqua Master – 8 gals. (0.75 gal/acre) Knockout – 3 gals. (1 gal/acre) Tribune – 3 gals. (1 gal/acre)	13
2012	American Lotus, water hyacinth, water primrose, common salvinia, giant salvinia, water lily, water shield	Aqua Master – 87 gals. (0.75 gal/acre) Tribune – 6 gals. (1 gal/acre)	129
2013	giant salvinia, common salvinia	Tribune – 5.75 gals. (1 gal/acre) Aquamaster – 3 gals. (0.75 gal/acre)	8

HISTORY OF REGULATIONS

Recreational

Statewide regulations for all fish species implemented at impoundment:

April 1, 1991 - Largemouth bass slot implemented as corrective measure to direct harvest to overabundant small fish (14-17", 8 fish creel, 4 fish over slot allowed)

July 20, 1994 – With success of corrective management, including the addition of additional forage base (threadfin shad) bass slot changed as an enhancement measure for trophy size bass. (15"-19" slot limit, 8 fish creel with 2 fish allowed over slot). Described in: Development of a Trophy Largemouth Bass Fishery in Louisiana (Hughes & Wood – 1995)

July, 2001 – Slot size increase to 16"-21" proposed by JPWD. LDWF recommendation was to solicit angler opinion before initiation of process. Proposal advertised in Jonesboro, Ruston, and Monroe newspapers – angler response unfavorable to proposal. Slot size increase is a current proposal of the JPWD.

The recreational fishing regulations may be viewed at the link below:
http://www.wlf.louisiana.gov/fishing/regulations

Commercial

The use of gill nets, trammel nets, and hoop nets are prohibited in Caney Lake.

The commercial fishing regulations may be viewed at the link below:
http://www.wlf.louisiana.gov/fishing/regulations

DRAWDOWN HISTORY

No drawdowns conducted since impoundment. Small watershed (5:1) makes re-fill in a particular calendar year questionable. Also, the expansion of eelgrass *Vallisneria americana* beginning in 2008 along with other re-vegetation efforts would be compromised if the lake was lowered. Table 4 below describes lake water levels from the point of impoundment (when the gates were closed) and provides reference of re-fill time. Data of note is the time required to fill the remaining 5 feet of elevation – 373 days.

Table 4. Water level elevation history of Caney Creek reservoir post impoundment.

Elevation (MSL)	Date	Lake Surface Area (acres)
162	26 February 1986	200
165	14 March 1986	450
170	21 April 1986	900
175	24 October 1986	1,450
180	27 November 1986	2,050
185	2 February 1987	2,750
190	28 February 1987	3,500
191	Average 1987	3,650
195	6 January 1988	4,250
198	Average 1988	4,700
200	15 January 1989	5,000
Data supplied by John Eason, Engineer, DOTD		

FISH KILLS / DISEASE HISTORY, LMBV

No kills due to poor water quality or toxins. Unusual events described in (**APPENDIX III** – **FISH HEALTH EVENTS**)

CONTAMINANTS / POLLUTION

Water quality

http://www.deq.state.la.us/ Routine DEQ sampling discontinued in 1999. LDWF water sampling conducted in conjunction with triploid grass carp project. The following text from: Use of Triploid Grass Carp in Caney Creek Reservoir - Final Report.

Measured water parameters included pH, conductivity, dissolved oxygen, temperature, and water clarity. Mean water temperatures for the three stations (at a depth of 1m) varied seasonally, but were similar among years. The reservoir stratified thermally in April of each year. Stratification generally continued into October. A distinct oxycline was also formed each year. No change in timing and depth of stratification were observed associated with the reduction in aquatic vegetation. Water clarity decreased temporarily following vegetation removal. Chlorophyll-a levels showed seasonal variation with highs in the warmer months and lows in the cooler months. Some changes did occur in the chemical limnology of Caney Creek Reservoir as aquatic vegetation levels were reduced. As a phosphate form readily available to aquatic plants, orthophosphate displayed an inverse relationship with increases in aquatic plant growth. Orthophosphate was found to be in widely variable levels before macrophyte removal. Post event levels were more stable with small reductions occurring only during summertime periods. Orthophosphate level reductions did not correlate well with chlorophyll-a values. Total phosphate levels showed seasonal oscillation and did not appear to be significantly affected by the reduction in macrophytes. Nitrate nitrogen was relatively constant throughout most of the study period, with variation ranging less than 0.1 mg/l. Wider variation occurred late in the study period but did not correlate well to chlorophyll-a abundance. A reversal in the upward trend of ammonia nitrogen was correlated with the removal of macrophytes. Another upward trend began 18 months after macrophyte removal and continued through the study period. Biochemical oxygen demand increased as a function of decreasing Secchi readings. BOD was also found to have had an unexpected inverse relationship to chlorophyll-a abundance. Values after macrophyte removal were increased.

Some aspects of the limnology of Caney Lake Reservoir did not appear to be influenced by the introduction of triploid grass carp or the subsequent loss of macrophyte vegetation. Temperature, stratification pattern, and dissolved oxygen followed seasonal influence. Some changes appeared in nutrient values during the study period. Those changes were primarily influenced by the shift from a macrophyte-based system to a plankton-based system. Chlorophyll-a values did not indicate a long-term increase in plankton. A resulting loss in primary productivity did occur.

Water level

Water levels were monitored to determine the relationship between local rainfall and lake level fluctuations. The following table lists water level measurements. A simple staff gage was installed on one of the wooden pilings at the spillway on 11/08/2005 (Table 5).

BIOLOGICAL

Fish Samples

Past and Planned sampling is listed in Table 6 below. Biomass (rotenone) sampling was conducted from 1986 – 1995. It was discontinued primarily due to negative public sentiment. Electrofishing continues as primary bass sampling tool - conducted since impoundment. Lead netting as a crappie sampling tool developed in Caney. Lead nets of various mesh sizes (0.5”, 1.0”, 1.5”, and 2.0”) were set with 0.5” mesh frame nets for comparison of catch.

Table 6. Sampling schedule for Caney Creek Reservoir, 1989 – 2016.

Note: All sampling conducted as per LDWF Standardized Sampling Guidelines.	
1989	Electrofishing 3-15 minute samples. Note: 15 minutes is not the total time required for the sample. LDWF electrofishing samples are defined as 900 seconds of time that electricity is actually being applied into the water. In addition, other parameters such as sampling equipment, time of day, time of year and sample site are all consistent.
1990	Electrofishing 5-15 minute samples Shoreline seining Water quality sampling
1991	Electrofishing 6-15 minute samples (spring and fall) Shoreline seining Rotenone 3–one acre sets
1992	Electrofishing 6-15 minute samples (spring and fall) Shoreline seining Rotenone 3–one acre sets Water quality sampling
1993	Electrofishing 6-15 minute samples (spring and fall) Recreational Angler Survey (6 surveys / month – 12 months) Rotenone 3–one acre sets Water quality sampling
1994	Electrofishing 6-15 minute samples (spring and fall) Recreational Angler Survey (6 surveys / month – 12 months) Rotenone 3–one acre sets Water quality sampling
1995	Electrofishing 6-15 minute samples (spring and fall) Gill Netting – 6 samples each including: 300' 2.5 in. bar. 300' 3.0 in. bar. 300' 3.5 in. bar 300’ 4.0 in. bar Rotenone 3–one acre sets Water quality sampling
1996	Electrofishing 6-15 minute samples (spring and fall) forage sampling Recreational Angler Survey (6 surveys / month – 12 months) Water quality sampling
1997	Electrofishing 6-15 minute samples (spring and fall) forage sampling Water quality sampling
1998	Electrofishing 6-15 minute samples (spring and fall) forage sampling Recreational Angler Survey (6 surveys / month – 12 months) Water quality sampling Frame Nets - 9 stations

1999	Electrofishing 6-15 minute samples (spring and fall) Gill Netting – 6 samples each including: 300' 2.5 in. bar. 300' 3.0 in. bar. 300' 3.5 in. bar 300’ 4.0 in. bar
2000	Electrofishing 6-15 minute samples (spring and fall) Gill Netting – 6 samples each including: 300' 2.5 in. bar. 300' 3.0 in. bar. 300' 3.5 in. bar 300’ 4.0 in. bar Frame / Lead Nets - 6 stations
2001	Electrofishing 6-15 minute samples (spring and fall) Frame / Lead Nets - 6 stations
2002	Electrofishing 6-15 minute samples (spring and fall) Gill Netting – 6 samples each including: 300' 2.5 in. bar. 300' 3.0 in. bar. 300' 3.5 in. bar 300’ 4.0 in. bar Shoreline seining
2003	Electrofishing 6-15 minute samples (spring and fall)
2004	Aquatic Type Map Electrofishing 6-15 minute samples (spring and fall) Gill Netting – 6 samples each including: 300' 2.5 in. bar. 300' 3.0 in. bar. 300' 3.5 in. bar 300’ 4.0 in. bar Frame / Lead Nets - 6 stations
2005	Aquatic Type Map Electrofishing 6-15 minute samples (spring and fall) Shoreline seining
2006	Aquatic Type Map Electrofishing 6-15 minute samples (spring and fall) Lead Nets - 6 stations Shoreline seining

2007	Aquatic Type Map Electrofishing 6-15 minute samples (spring and fall) Gill Netting – 6 samples each including: 300' 2.5 in. bar. 300' 3.0 in. bar. 300' 3.5 in. bar 300’ 4.0 in. bar Lead Nets - 6 stations Recreational Angler Survey (6 surveys / month – 12 months) Shoreline seining
2008	Aquatic Type Map Electrofishing 6-15 minute samples (spring and fall) Gill Netting – 5 samples each including: 300' 2.5 in. bar. 300' 3.0 in. bar. 300' 3.5 in. bar 300’ 4.0 in. bar Lead Nets - 6 stations Shoreline seining
2009	Aquatic Type Map Electrofishing 6-15 minute samples (spring and fall) Lead Nets - 6 stations Shoreline seining
2010	Aquatic Type Map Electrofishing 6-15 minute samples (spring and fall) Electrofishing Forage Sample – 1 – 15 minute sample (fall) Gill Netting – 6 samples each including: 300' 2.5 in. bar. 300' 3.0 in. bar. 300' 3.5 in. bar 300’ 4.0 in. bar Shoreline seining
2011	Aquatic Type Map Electrofishing 6 – 15 minute samples (spring and fall) Gill Netting – 6 samples each including: 300' 2.5 in. bar. 300' 3.0 in. bar. 300' 3.5 in. bar 300’ 4.0 in. bar Electrofishing Forage Sample – 1 – 15 minute sample (fall) Lead Nets - 6 stations
2012	Electrofishing 6 – 15 minute samples (spring and fall) Electrofishing Forage Sample 4 – 225 second samples (fall)
2013	No sampling conducted.

2014	Begin largemouth bass mortality study Electrofishing 6-15 minute samples (spring and fall) Electrofishing Forage Sample 4-225 second samples (fall) Lead Nets-6 stations Gill Netting – 6 samples each including: 300' 2.5 in. bar. 300' 3.0 in. bar. 300' 3.5 in. bar 300’ 4.0 in. bar
2015	Continue largemouth bass mortality project Electrofishing 6-15 minute samples (spring and fall) Electrofishing Forage Sample 4-225 second samples (fall) Lead Nets-6 stations Gill Netting – 6 samples each including: 300' 2.5 in. bar. 300' 3.0 in. bar. 300' 3.5 in. bar 300’ 4.0 in. bar Recreational Angler Survey (6 surveys / month – 12 months)
2016	Complete largemouth bass mortality project Electrofishing 6-15 minute samples (spring and fall) Electrofishing Forage Sample 4-225 second samples (fall) Lead Nets-6 stations Gill Netting – 6 samples each including: 300' 2.5 in. bar. 300' 3.0 in. bar. 300' 3.5 in. bar 300’ 4.0 in. bar

Lake records

See LOWA State Records at the link below:
http://www.laoutdoorwriters.com/Records/LouisianaFishRecords/tabid/87/Default.aspx

Table 7. State ranked fish records for Caney Creek Reservoir, Louisiana.

Species	Weight (pounds)	Date	State Rank
Largemouth bass	15.97	February 1994	1
Black Crappie	3.55	February 2003	2
Redear Sunfish	2.87	August 1998	1
Bluegill	1.53	July 2001	3
Yellow Bass	1.27	February 2008	2

Stocking History

Table 8. Stocking history of Caney Creek Reservoir, Louisiana, 1986 – 2013.

Date	Number / Species Stocked
1986	514,261 FLMB, 72,042 bluegill 81,120 redear sunfish
1987	222,690 FLMB
1988	135,856 FLMB 7,976 channel catfish 6,918 blue catfish
1989	80,988 FLMB
1990	30,000 threadfin shad
1991	Note – no bass stocked in 1990 or 1991 due to forage problem
1992	427,248 FLMB
1993	376,086 FLMB
1994	11,968 triploid grass carp 148,044 FLMB
1995	626,689 FLMB
1996	120,615 FLMB
1997	111,238 FLMB
1998	215,000 FLMB
1999	234,166 FLMB
2000	251,504 FLMB
2001	260,588 FLMB
2002	252,120 FLMB
2003	250,124 FLMB 5,324 channel catfish
2005	250,806 FLMB
2007	241,133 FLMB
2009	211,685 FLMB

2011	228,267 FLMB
2013	43,500 FLMB

Species profile

The existing fish population was not removed prior to impoundment. And the species list can be found in APPENDIX IV (PRE-IMPOUNDMENT FISH SPECIES).

Largemouth Bass Genetics

The genetics of the largemouth bass population has been tested to determine the percentage of the Florida genome influence in Caney Creek (Table 9). The Florida genome influence has ranged from 18 to 84% over the years with the most recent results in 2008 being 52% total Florida gene influence.

Table 9. Genetic analyses for largemouth bass from Caney Creek Reservoir, LA, 1987 – 2011

Year	Number	Northern	Florida	Hybrid	Florida Influence
1987	346	70%	16%	14%	30%
1988	287	73%	16%	11%	27%
1989	300	82%	5%	13%	18%
1990	300	64%	11%	25%	36%
1991	35	63%	11%	26%	37%
1994	39	49%	23%	28%	51%
2000	66	35%	21%	44%	65%
2004	100	39%	28%	33%	61%
2006	70	15%	37%	47%	84%
2008	160	48%	19%	33%	52%

Threatened/endangered/exotic species

Bald Eagles. Nest adjacent to lake.

CREEL

Historic Information/Type

Recreational angler surveys were conducted for 12-month periods during 1993, 1994, 1996, and 1998 and 2007 to determine angler effort and catch rates. Roving surveys to count anglers were made at random during each scheduled interview period to allow expansion of data to estimate total angler attributes. The 2007 random access creel included (3) 5 hour surveys per month for all months except March, April, and May which had 6 surveys. A total count of boats on the lake was also conducted during this survey. A total of 180 interviews were conducted over 44 days. The mean distance traveled by anglers was 40 miles. A total of 24 largemouth bass were measured and considered harvested, while 290 were reported released. Of the bass harvested during the interview periods, only 4% were above the slot. It was calculated that 33,782 bass were caught in 2007, although the standard error is very high, SE = 8270. Only 5% of the total bass caught were harvested. Largemouth bass were the most sought after species, but bream (redear, bluegill, and longear), crappie, yellow bass, and channel catfish were also identified as primary species fished for.

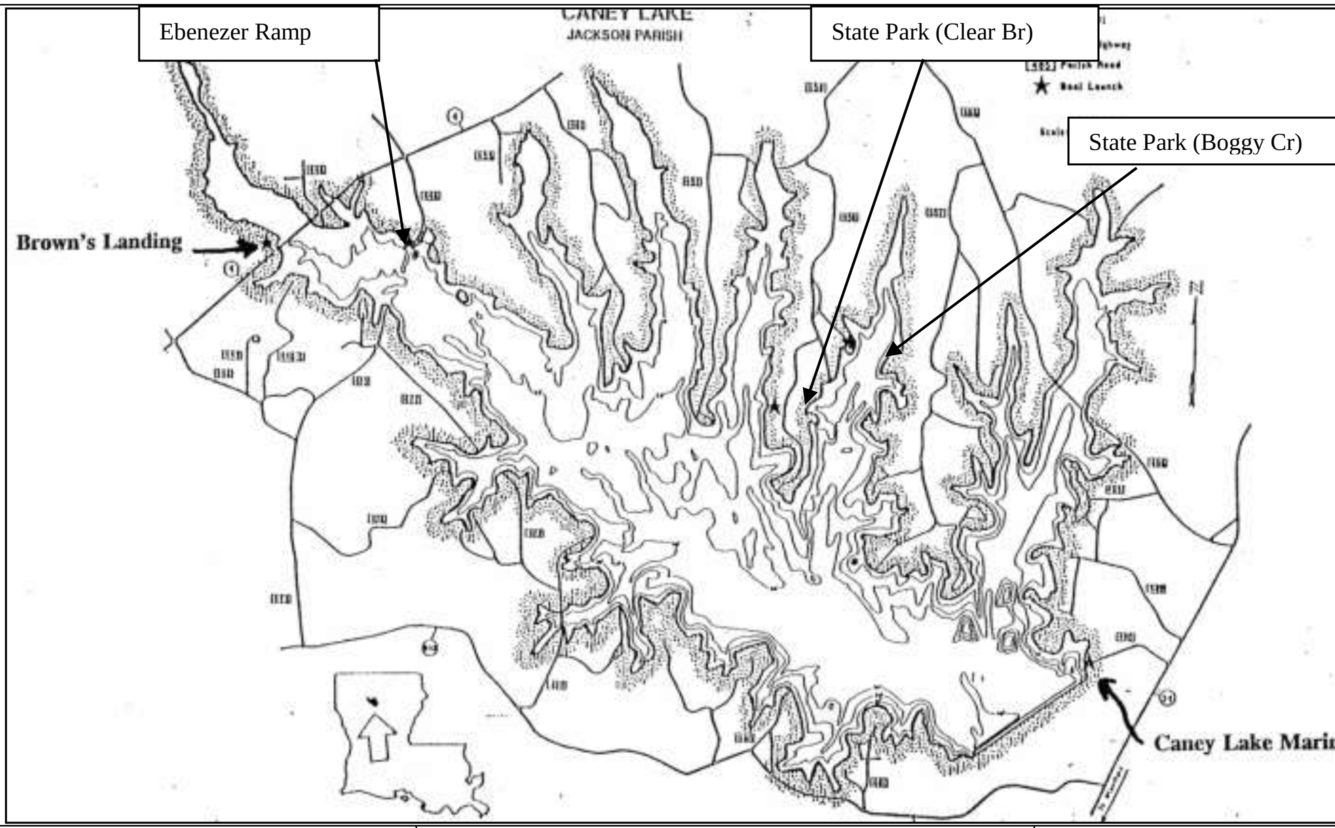
During the 2007 creel survey, the following question was asked of all anglers: "Are you satisfied with the current regulations on sunfish, crappie and bass on Caney Lake? Only 9% of the anglers responded with "no". All of the objections were related to the largemouth bass regulations. Of these, 1 angler desired no special reg.'s, 1 angler desired a minimum length of 14 inches, 3 anglers preferred a lower slot limit, whereas 13 anglers requested a larger or increased slot limit.

WATER USE

Hunting (Permanent duck blinds by permitted of JPWD), Skiing, Swimming, Fishing, residential irrigation.

APPENDIX I – CANEY PUBLIC BOAT RAMPS

(**return to Boat docks**)



RAMP	COORDINATES	CONDITION
Spillway	32^0 13' 35.18N -92^0 29' 15.94"W	Good
State Park (Boggy Cr)	32^0 15' 10.79N -92^0 30' 48.81"W	Good
State Park (Clear Br)	32^0 14' 53.65N -92^0 31' 19.68"W	Good
Ebenezer *	32^0 15' 44.78N -92^0 33' 39.99"W	See note
Brown's Landing	32^0 15' 47.51N -92^0 34' 30.07"W	Good

Ebenezer* - Short ramp – 20' total. Ramp intact and in good condition. Has 6" curb at deep end. Outboard motor thrust has washed a depression below the deep end of the ramp creating an 18" drop at the end of the ramp.

Free launching and parking at all ramps.

APPENDIX II – TYPE MAP HISTORY

(return to Aquatic Typemap)

Caney Creek Reservoir – Aquatic Vegetation Survey 2013
October 14, 2013 by Jeff Sibley and Kevin Houston.

Total vegetation coverage for the reservoir is less than 5%, but slowly expanding in some areas. Giant salvinia (*Salvinia molesta*) was found on the lake in 2013 again near the swimming area boat launch in the Jimmie Davis State Park. Salvinia was isolated to the two adjacent pockets near the ramp and quickly treated. At the time of the survey, only a few plants remained. Common salvinia (*Salvinia minima)* could be found in combination with emergent shoreline vegetation in the western reaches of the lake, but was at generally low densities. Submerged aquatic vegetation is limited to the Smith Branch arm where the coverage of fanwort (*Cabomba caroliniana*) and bladderwort (*Utricularia spp*) has remained constant in recent years, and to the expanding eelgrass (*Vallisneria Americana)* population in Clear Branch. Eelgrass densities have increased since low-water periods following the draught of 2010-2011. Plants appear healthy and have expanded across the cove and even a few plants were found in adjacent coves and across the lake. The map below is a representation of the aquatic plant coverage on Caney Lake. A more precise map could not be generated at the time of the survey due to software limitations.

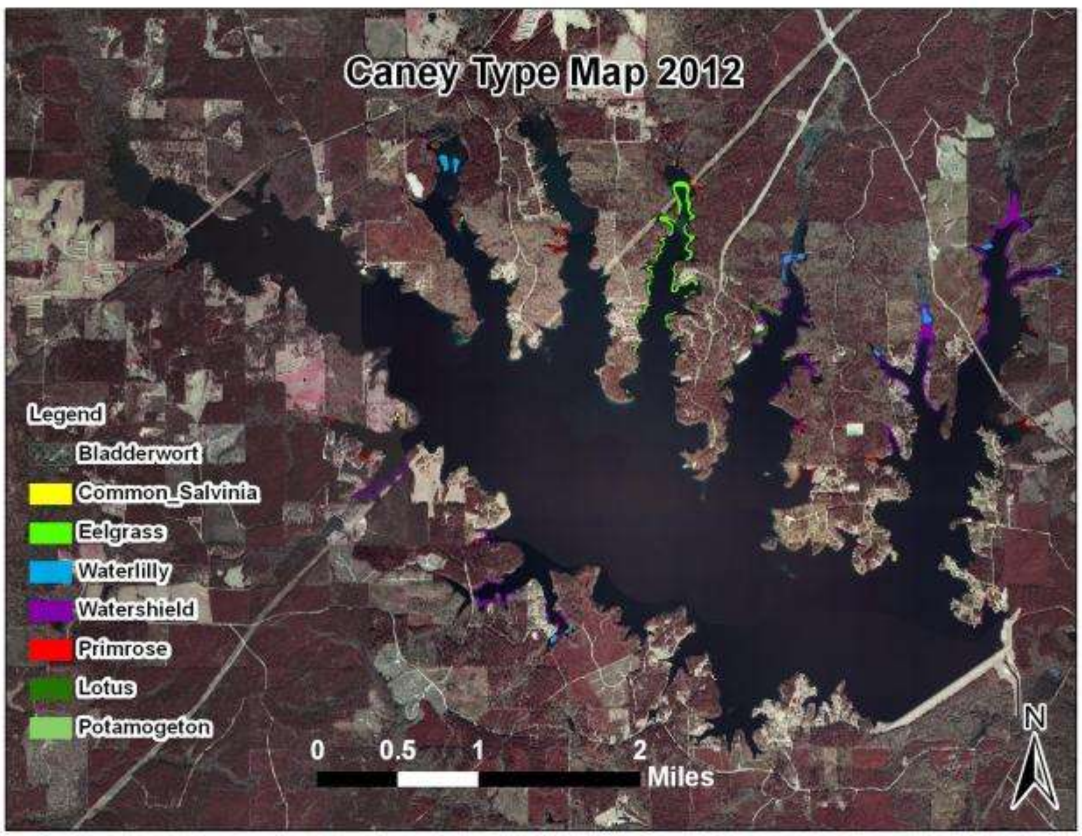
SPECIES LIST
CANEY LAKE TYPE MAP 2013

Common Name	Scientific Name
American Lotus	*Nelumbo lutea*
Bladderwort	*Utricularia spp.*
Cattail	*Typha spp.*
Common Salvinia	*Salvinia minima*
Duck Potato	*Sagittaria latifolia*
Diverse-leaved Pondweed?	*Potamogeton diversifolia**
Eelgrass	*Vallisneria americana*
Fanwort	*Cabomba caroliniana*
Giant Salvinia	*Salvinia molesta*
Lizard's Tail	*Saururus cernuus*
Muskgrass	*Chara spp.*
Primrose	*Ludwigia repens*
Smartweed	*Polygonum hydropiperoides*
Spike Rush	*Eleocharis baldwinii*
Taro	*Colocasia esculenta*
Torpedo Grass	*Panicum repens*
Water Hyacinth	*Eichhornia crassipes*
Water Lilly	*Nymphaea odorata*
Water Shield	*Brasenia schreberi*

Caney Lake – Aquatic Vegetation Type Map – 2012

Caney Vegetation Totals 2012
Total Coverage being less than 5 %
Respective coverage of that 5% are listed below:

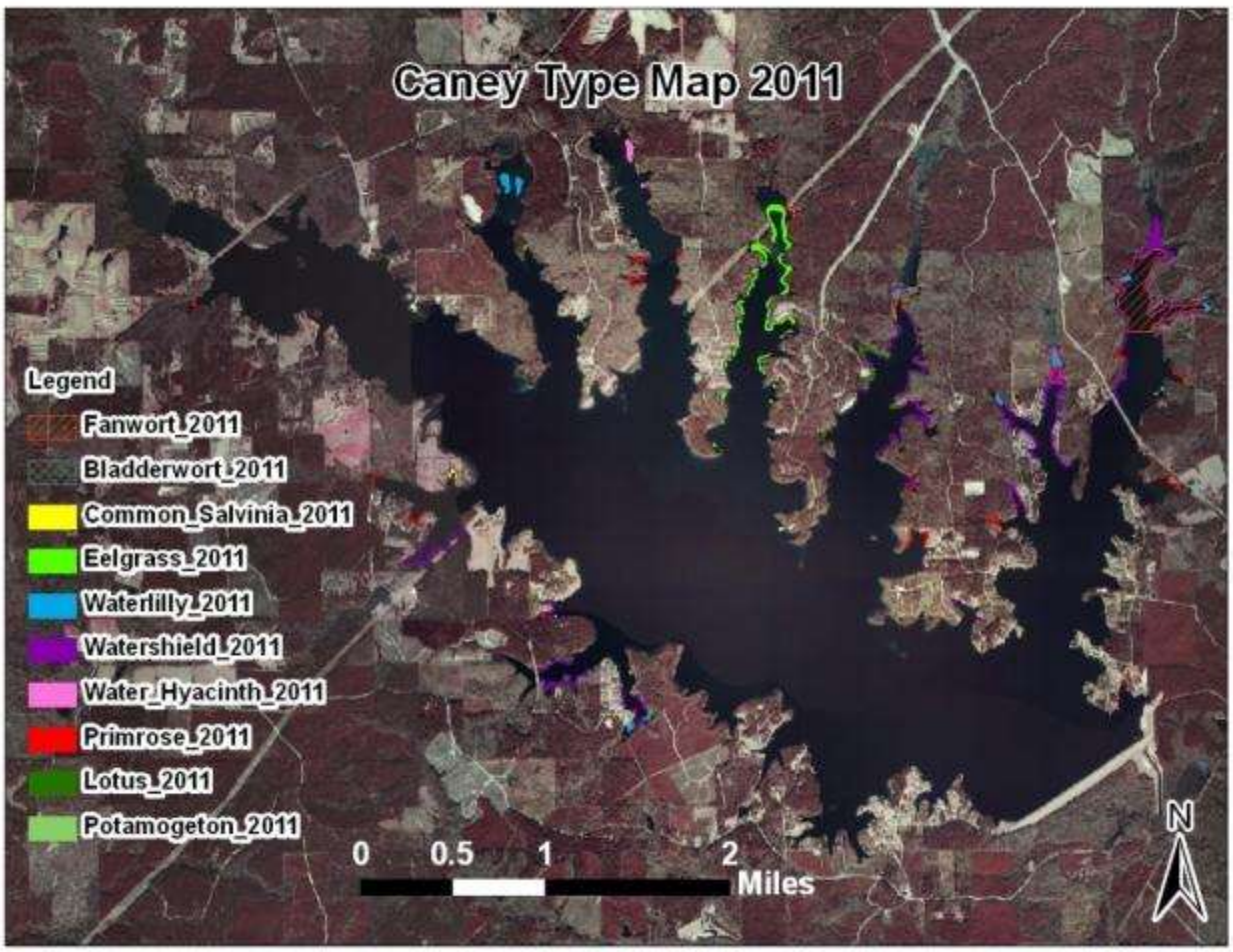
Water Shield 40%
Bladderwort – 20%
Waterlilly-10%
Lotus-10%
Common Salvinia-7%
Potamogeton- 5%
Eelgrass- 5%
Primrose- 3%



Caney Lake – Aquatic Vegetation Type Map – 2011

Caney Vegetation Totals 2011
Total Coverage being less than 5 %
Respective coverage of that 5% listed below:

Water Sheild-53.5%
Waterlilly-10.8%
Primrose-6.5%
Eelgrass-14.7%
Lotus-7.8%
Fanwort-56.5%
Bladderwort-4.6%
Water Hyacinth-2.3%
Common Salvinia-0.15%



APPENDIX III – FISH HEALTH EVENTS

(return to fish kills)

2-17-04 – CORMORANT RELATED FISH KILLS

LDWF Sgt. Duane Taylor reported that he had observed several hundred cormorants feeding and had moved into the area for a closer look. While in the feeding area, he observed that fish were on top of the water in stress. He collected approximately 40 redear sunfish, crappie, and largemouth bass by hand. He reported that the fish would struggle to dive, but soon floated to the top. Sgt. Taylor traveled by boat to other areas of the lake, but saw fish only in the area of cormorant feeding activity.

District II fisheries personnel (M. Wood, R. Daniel, R. Lively) arrived at the site at 10:00am 2-18-04. The weather was sunny and the wind was calm, as it had been the day before. A large number of cormorants were observed at the same site, but were not diving or feeding. No dead fish were found. Stressed fish were found later in the day (while cormorants were actively feeding. Samples were shipped by bus to Dr. John Hawke at LSU in Baton Rouge. Dr. Hawke reported that all of the fish samples had:

- a light parasite load - not significant
- inverted intestines
- distended air bladders
- injury marks caused by birds

Dr. Hawke agreed that the condition of the fish was likely linked to the feeding activity of the cormorants. I suspect that all of the symptoms listed above may be caused as fish flee into the upper reaches of the water column to escape the flock of cormorants. Due to reduced water pressure, gas in their bladder would expand faster that it could be released by the fish in cold water conditions. The resulting condition would essentially render the fish helpless on the surface where it is subject to attack by birds. Gulls were observed taking advantage of the situation. This kill is very similar to a kills reported since February 2001.

LARGEMOUTH BASS VIRUS

Largemouth Bass Virus is one of more than 100 naturally occurring viruses that affect fish but not warm-blooded animals. Although the virus is carried by other fish species, to date, it has produced disease only in largemouth bass. There is no known cure or preventative, as is commonly the case with viruses.

LMBV has been found in bass that show no signs of disease, which suggests that some fish, might be infected but not ever become ill. However, bass kills have been linked to LMBV. Since all documented die-offs occurred from June through September, warm water temperatures are suspected to be a factor. No other common variables seem to exist among lakes where kills occurred.

Most bass infected with LMBV will appear completely normal. In those cases where the virus has triggered disease, dying fish will be near the surface and have trouble swimming and remaining upright. LMBV appears to attack the swim bladder, causing bass to lose their balance. Diseased fish might also appear bloated. The occurrence of lesions or black spots is not necessarily a symptom of LMBV. Adult bass of two pounds and more seem to be the most susceptible to disease.

Long term effects of LMBV on bass populations are unknown. Indications are, however, that it will not harm fisheries long-term. Surveys on lakes following a kill suggest that fish populations remain within the normal range of sampling variability.

LMBV is not known to infect any warm-blooded animals, including humans.

Caney Creek Reservoir LMBV Sampling
Fall 2000 – Largemouth bass virus sampling conducted. 11% of 64 fish positive.
Fall 2003 - LMBV sampling conducted - 46 bass sample – all negative.
No LMBV related kills have been documented in Caney.

CANEY LAKE CRAPPIE SYMPTOMS

July 2004: Received call from Caney angler concerning fish that looked healthy externally but had an unpleasant visual appearance when cleaned. Symptoms include yellowish coloration in the flesh with concentrations of yellow lipid material at the base of the fins and below the abdominal cavity. Bruise-like lesions were located randomly in the filets on some of the fish. See attached photo. Samples were collected for subsequent transport to Dr. John Hawke with the LA Aquatic Lab @ LSU.

August 3, 2004 - Received preliminary diagnosis from Dr. Hawke. "Symptoms were suspected to be diet related."

Fall – Winter 2004 - No symptoms observed.

May, 2005: received calls from anglers concerning symptoms in Caney crappie. Collected crappie and shipped to Dr. Hawke for another look.

June 5, 2005: received preliminary findings from Dr. Lomax from the Department of Veterinary Pathology, LSU Baton Rouge listing several possibilities:
a) Vitamin E deficiency, b) Diet, c) Pesticide or natural toxin.

June 6, 2005: Conference call with representatives from DHH, LSU, DEQ, and LDWF to review the Lomax Pathology Report. Conference call included: Mike Wood, Joseph Shepard, Tim Morrison (LDWF), Dianne Dugas (DHH), Chris Piehler (DEQ), Dr. Lomax, Dr. John Hawke, Dr. Baumgartner, (LSU, Veterinary Pathology).

Some of the comments provided in the report prompted our concern and the need to involve DHH and DEQ in a discussion of a possible public fish advisory on crappie consumption in Caney Lake. The discussion was centered on possible causes of tissue discoloration and lesions found on some of the fish examined. Mike Wood explained the process he went through to harvest fish samples and send them to LSU for analysis. He also provided a history perspective and his observations on crappie in Caney Lake. Mike noted that crappie seemed to be the only species affected and the symptoms weren't present during the winter. Dr. Hawke observed that the smaller fish seemed to have the greatest possibility of having the symptoms. Dr. Lomax reviewed his findings and answered any questions about his results.

After much discussion it appeared that a dietary deficiency of vitamin E was thought to be the most likely cause of the yellow tissue pigmentation and possibly the cause of the lesions found in the crappie samples from Caney Lake. Dr. Lomax suggested that test should be conducted on crappie liver samples to show whether vitamin E is in fact at low levels. Mike Wood will acquire crappie samples this week to send to LSU for vitamin E testing. Mike is also collecting additional fish to send to Auburn University for a second opinion on the cause of the yellow pigmentation in the tissue of crappie from Caney Lake.

The possibility of pesticides causing the yellow tissue discoloration was also discussed. It was noted that there wasn't much agriculture in the area of the lake and if pesticides were the cause, other species should also be affected.

It was agreed upon by LDWF, DHH and DEQ representatives to wait until the vitamin E deficiency test was completed before any decisions would be made on whether or not a public fish consumption notice would be necessary. Dr. Lomax also stated that we should gather more information before considering a public fish advisory. It was also taken into consideration that crappie from Caney Lake showed the sample symptoms last year at this time.

<u>June 8, 2005</u> - Additional samples collected including other fish species (crappie, yellow bass, redear sunfish, and largemouth bass) and fish from Lake D'Arbonne for comparison.

<u>June 10, 2005</u> – Samples submitted to LSU, who in turn sent livers from those fish to Texas A&M for Vitamin E analysis. Whole crappie samples also sent to Auburn.

<u>June 22, 2005</u> – Results received. No symptoms found in fish other than crappie from Caney.

The cause of the symptoms was not conclusively determined by LSU, Auburn, or Texas A & M. However, items in the fish's diet are strongly suspected. Symptoms were most prevalent in smaller crappie. Items found in the stomachs of the smaller crappie were rich in orange, yellow, and red pigments. Larger crappie had stomach contents predominated by small fish. The seasonal nature of the symptoms (spring-summer) also suggest the influence of food items available at that time of the year. Pesticide toxicity was ruled as improbable. No significant pathogens were identified, including LMBV. No human pathogens were detected in the samples. No human health risk is indicated.

APPENDIX IV – PRE-IMPOUNDMENT FISH TAXONOMY

(return to species profile)

Gar Family, LEPISOSTEIDAE
Spotted gar, *Lepisosteus oculatus* (Winchell)
Longnose gar, *Lepisosteus osseus* (Linnaeus)

Bowfin Family, AMIIDAE
Bowfin, *Amia calv*a Linnaeus

Herring Family, CLUPEIDAE
Gizzard shad, *Dorosoma cepedianum* (Lesueur)
Threadfin shad, *Dorosoma petenense* (Günther)

Minnow Family, CYPRINIDAE
Blacktail shiner, *Cyprinella venusta* (Girard)
Striped shiner, *Luxilus chrysocephalus* Rafinesque
Ribbon shiner, *Lythrurus fumeus* Evermann
Golden shiner, *Notemigonus crysoleucas* (Mitchill)
Emerald shiner, Notropis *atherinoides Rafinesque*
Taillight shiner, *Notropis maculatus* (Hay)
Weed shiner, *Notropis texanus* (Girard)
Mimic shiner, *Notropis volucellus* (Cope)
Pugnose minnow, *Notropis emiliae* Hay
Bullhead minnow, *Pimephales vigilax* (Baird and Girard)

Sucker Family, CATOSTOMIDAE
Creek chubsucker, *Erimyzon oblongus* (Mitchill)
Lake chubsucker, *Erimyzon sucetta* (Lacépède)
Spotted sucker, *Minytrema melanops* (Rafinesque)

Freshwater Catfish Family, ICTALURIDAE
Black bullhead, *Ameiurus melas* (Rafinesque)
Yellow bullhead, *Ameiurus natalis* (Lesueur)
Blue catfish, *Ictalurus furcatus* (Lesueur)
Channel catfish, *Ictalurus punctatus* (Rafinesque)
Tadpole madtom, *Noturus gyrinus* (Mitchill)
Flathead catfish, *Pylodictis olivaris* (Rafinesque)

Pike Family, ESOCIDAE
Grass pickerel, *Esox americanus vermiculatus* Lesueur
Chain pickerel, *Esox niger* Lesueur

Pirate Perch Family, APHREDODERIDAE
Pirate perch, *Aphredoderus sayanus* (Gilliams)

Killifish Family, CYPRINODONTIDAE
Golden topminnow, *Fundulus chrysotus* (Günther)
Starhead topminnow, *Fundulus nottii* (Agassiz)
Broadstripe topminnow, *Fundulus euryzonus* Suttkus and Cashner

Blackstripe topminnow, *Fundulus notatus* (Rafinesque)
Bayou topminnow, *Fundulus nottii* (Agassiz)
Blackspotted topminnow, *Fundulus olivaceus* (Storer)

Livebearer Family, POECILIIDAE
Western mosquitofish, *Gambusia affinis* (Baird and Girard)

Silverside Family, ATHERINIDAE
Brook silverside, *Labidesthes sicculus* (Cope)

Temperate Bass Family, PERCICHTHYIDAE
Yellow bass, *Morone mississippiensis* Jordan and Eigenmann

Sunfish Family, CENTRARCHIDAE
Flier, *Centrarchus macropterus* (Lacépède)
Banded pygmy sunfish, *Elassoma zonatum* Jordan
Green sunfish, *Lepomis cyanellus* Rafinesque
Warmouth, *Lepomis gulosus* (Cuvier)
Orangespotted sunfish, *Lepomis humilis* (Girard)
Bluegill, *Lepomis macrochirus* (Rafinesque)
Dollar sunfish, *Lepomis marginatus* (Holbrook)
Longear sunfish, *Lepomis megalotis* (Rafinesque)
Redear sunfish, *Lepomis microlophus* (Günther)
Spotted sunfish, *Lepomis punctatus* (Valenciennes)
Bantam sunfish, *Lepomis symmetricus* Forbes
Florida largemouth bass, *Micropterus floridanus* (Kassler et al.)
Northern largemouth bass, *Micropterus salmoides salmoides* (Lacépède)
Black crappie, *Pomoxis nigromaculatus* (Lesueur)

Perch Family, PERCIDAE
Bluntnose darter, *Etheostoma chlorosomum* (Hay)
Cypress darter, *Etheostoma proeliare* (Hay)
Logperch, *Percina caprodes* (Rafinesque)

Fishes collected in watershed prior to impoundment of Caney Creek Reservoir. Results in partial fulfillment of requirements for Masters of Science Degree, Ms. Eileen Stevens, NLU, 1986.